

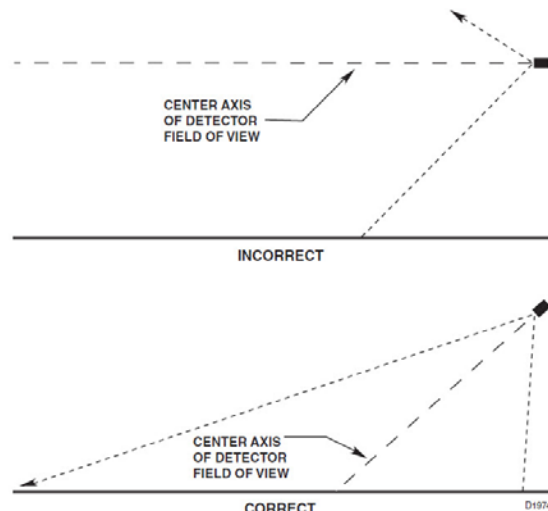
X3301 Multispectrum IR Flame Detector: Extreme Weather Solutions



Flame detection is needed in a wide variety of applications and many of these applications are in environments that include wind, rain and/or snow. Because Infrared Radiation (IR) is absorbed by water molecules, it is important to minimize the accumulation of condensation, rain and snow on the optics to reduce weather-induced fault conditions. Doing so will help ensure that optimal flame detection capability is maintained.

The most effective optical flame detectors have features that can address these extreme weather challenges and conditions. Below is a list of actions that can help improve the X3301 Multispectrum IR Flame Detector's performance in extreme weather. More than one or potentially all of the measures may be required to optimize the detector's performance when it is installed in applications that experience extreme weather conditions.

Aiming: By aiming the detector down 10° to 20° the optics are more physically protected and precipitation is more likely to be removed naturally via gravity. In most applications, the detector is monitoring a process that is below or at the same level as the detector. Since the top of the X3301's Field of View (FOV) is 30° it can be aimed downward and continue to monitor for potential fires above the center axis of the detector's FOV. Use a Q1201C laser aimer to establish the detector's Field of View (FOV) for each specific application.





Weather Shield: The Q2000 X-Series Weather Shield provides added physical weather protection. The Q2033 Field of View Limiter adds a restrictor plate to the Weather Shield that can provide even greater physical protection from windblown rain. The Q2033 can be purchased with a 30°, 20° or 10° sight limiter.



Lens Heaters: The X3301 comes standard with lens heaters that maintain a desired temperature set point. Heated lenses melt snow and ice, prevent condensation from forming and accelerate the drying process. The default setting is 35° Celsius. This can be increased (suggest 50° Celsius) to encourage faster melting/drying of precipitation. The configuration change can be made via the Flame Inspector software and cable. If the X3301 is an Eagle Quantum Premier® (EQP) LON model, the configuration change can be made via the S³ software and a PC.

Increase the *Oi* Fault Threshold: In some cases there is no way to prevent precipitation from accumulating on the optics. These are typically applications in which heavy rain is accompanied by strong winds. If enough precipitation accumulates on the optics, the X3301 will enter an Optical Integrity (*Oi*) Fault condition indicating a loss of 50% or more of the detector’s original detection range. The default setting for an *Oi* fault is 3 consecutive failed Automatic *Oi* tests. (The Automatic *Oi* test is performed every minute as a default.) If *Oi* faults are common at a site that experiences heavy windblown precipitation, the detector’s configuration can be changed to compensate for this situation. The time between tests and the number of consecutive failed tests required can be adjusted to allow for the weather to pass before the detector announces an *Oi* fault. An examination of the detector’s event logs is useful to determine the typical duration of an *Oi* fault condition and can be useful to determine alternative settings for the *Oi* fault. Typically a setting of 10 consecutive *Oi* test fails will resolve most weather related fault conditions. This change can be made via the Flame Inspector software and cable, or if the X3301 is a LON/EQP model, the change can be made via the S³ software and a PC.